

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended). A method for generating a periodic circular structure in a basic support material comprising the steps of:

- a) generating a ~~number~~ plurality of diffraction masks such that each mask ~~comprises~~ includes at least one transmission diffraction ~~gratings~~ grating having at least ~~one of a different one pattern selected from the group consisting of a~~ periodic concentric circular pattern, a spiral-like periodic pattern and a periodic radial spoke pattern;
- b) positioning ~~at least one of said~~ the plurality of the diffraction masks simultaneously or successively ~~in~~ at a certain distance ~~of~~ from the basic support material to be patterned, the distance being mask dependent;
- c) exposing ~~said~~ the basic support material by directing light beams through each of the plurality of the diffraction masks; and
- d) interfering the different light beams diffracted by the ~~gratings~~ grating on each mask in order to generate coincident light intensity patterns on the surface of the basic support material.

Claim 2 (currently amended). A method for generating a periodic circular structure in a basic support material comprising the steps of:

a) generating a plurality of diffraction masks such that each mask includes at least one transmission diffraction grating having at least one pattern selected from the group consisting of a periodic concentric circular pattern, a spiral-like periodic pattern and a periodic radial spoke pattern;

b) positioning the plurality of the diffraction masks simultaneously or successively at a certain distance from the basic support material to be patterned, the distance being mask dependent;

c) exposing the basic support material by directing light beams through each of the plurality of the diffraction masks; and

d) interfering the different light beams diffracted by the grating on each mask in order to generate coincident light intensity patterns on the surface of the basic support material;

~~The method according to claim 1, wherein the step of exposing further comprises the steps of: generating exposure by directing light through a transmission diffraction mask having a periodic circular interference mask pattern so as to generate exposure of circular tracks on the basic support~~

material; and after said step of generating exposure further generating exposure using a transmission diffraction mask having a spiral extending interference mask pattern or a radial extending interference mask pattern thereby generating a circumferential partitioning of said generated circular tracks.

Claim 3 (currently amended). A method for generating a periodic circular structure in a basic support material comprising the steps of:

a) generating a plurality of diffraction masks such that each mask includes at least one transmission diffraction grating having at least one pattern selected from the group consisting of a periodic concentric circular pattern, a spiral-like periodic pattern and a periodic radial spoke pattern;

b) positioning the plurality of the diffraction masks simultaneously or successively at a certain distance from the basic support material to be patterned, the distance being mask dependent;

c) exposing the basic support material by directing light beams through each of the plurality of the diffraction masks; and

d) interfering the different light beams diffracted by the grating on each mask in order to generate coincident light intensity patterns on the surface of the basic support material;

~~The method according to claim 1~~, wherein the step of exposing further comprises the steps of: generating said exposure using a first transmission diffraction mask having a combined circular and spiral interference mask pattern so as to generate a first spiral track pattern on the basic support material; and after said step of generating said exposure further generating said exposure using a second transmission diffraction mask having a combined circular and spiral extending interference mask pattern wherein said spiral component is oriented in an opposite direction to the first transmission diffraction mask, the second transmission effecting a partitioning of said generated first spiral track pattern by intersecting said first and said second spiral track pattern.

Claim 4 (original). The method according to claim 1, wherein the diffraction masks are one of an absorption and phase shifting mask.

Claim 5 (original). The method according to claim 1, wherein the light source generates light having a circular polarization or a linear polarization which varies with time.

Claim 6 (original). The method according to claim 1, wherein the light source comprises a wavelength between 5 and 500 nanometers.

Claim 7 (original). The method according to claim 6, further comprising the step of using an immersion lithography process for decreasing feature sizes, the lithography process having a refractive index larger than 1 and disposed between the transmission diffraction mask and the basic support material.

Claim 8 (original). The method according to claim 1, wherein the partitioned circular periodic structure comprises cells having a length to width ratio larger than 1.

Claim 9 (original). The method according to claim 1, wherein the basic support material comprises a layer for magnetic bit cells for a magnetic storage device.